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ABSTRACT

This report describes a technique for establishing relative priorities among policy issues that have been systematically identified in and extracted from written documents. The method involves assigning values to five factors that affect an issue's priority. These factors are: uncertainty, or the degree to which information is lacking; imminence, or the degree to which responses must be made quickly; the probability of change in the policies or practices affected by the issue; the scope of the change; and sensitivity to information, or the degree to which new information can alter decisions. Each factor is given values on a scale from 1 to 3 (low to high degree of impact), and the values are simply multiplied by each other to provide a score. The report reviews the background to the development of the technique, discusses briefly the identification of policy issues, describes the reasoning behind selection of the factors incorporated in the technique, considers modification of the technique by weighting critical factors, comments on assessing the values to be assigned to the factors, provides two examples of application of the method, and notes strengths and weaknesses of the process. An appendix provides further information on the system for identifying and prioritizing policy issues as developed by the Statistical Analysis Group in Education. (PGD)

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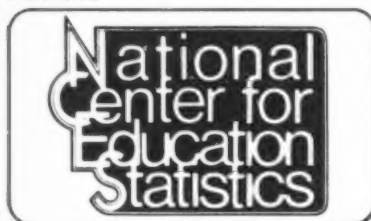
Establishing Priorities Among Issues in Education

Darlene F. Russ-Eft
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Prepared by

SAGE
STATISTICAL ANALYSIS GROUP IN EDUCATION

For the



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TECHNICAL REPORT 5

ESTABLISHING PRIORITIES AMONG ISSUES IN EDUCATION

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July 1979

Preface

The National Center for Education Statistics created the Statistical Analysis Group in Education (SAGE) to fulfill its mandate to produce policy-relevant analyses of education survey data. The purpose of Task 1 of SAGE is to develop a system for the empirical determination of policy issues in elementary and secondary education. To accomplish this purpose, efforts on this task are directed toward developing methods for (1) the identification of important policy issues, (2) the establishment of priorities among the identified issues, and (3) the specification of data and analysis needs to address the high priority issues. The present paper focuses on the second concern--the establishment of priorities.

We would like to express our appreciation to the following individuals who carefully reviewed and critiqued earlier drafts of this paper and contributed substantially to its present form: Peggie Campeau, William Clemans, Don McLaughlin, and Bob Rossi. We are also indebted to Lee J. Cronbach who shared a working draft of his manuscript Designing Educational Evaluations with us. The ideas discussed in his manuscript were very influential in setting a framework for this paper. However, the authors take full responsibility for the paper's content.

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Background

Purpose of Policy Issue Analysis (SAGE Task 1)

In 1974, as a part of PL 93-380, Congress established the purpose of the National Center for Education Statistics (NCES) to be to:

- (1) collect, collate, and, from time to time, report full and complete statistics on the condition of education in the United States; (2) conduct and publish reports on specialized analyses of the meaning and significance of such statistics; (3) assist state and local education agencies in improving and automating their statistical and data collection activities; and (4) review and report on educational activities in foreign countries.

The selection of statistics to collect and analyses to perform is limitless, and the value of the Center's contribution to American education will be determined, in large part, by the choices that are made. To be most effective, the Center must be capable of reporting information that fills the needs of policymakers; and the needs of policymakers can be characterized in terms of information that is used to decide among policy alternatives. In order to carry out their mission, the Center staff must formulate their statistical plans and allocate their resources based on an awareness of key issues in American education. Once these issues are identified and their relative importance is made clear, the Center can formulate rational plans for data collection, analysis, and reporting in a truly effective manner.

Recognizing the need for a systematic method to identify policy issues to supplement the informal survey of policymakers' needs and the sporadic literature review on which planning has traditionally been based, NCES included efforts to develop such a method as part of the work of the Statistical Analysis Group in Education (SAGE). This report is the second in a series describing the development of this method. The first report, entitled Framework for Policy Issue Identification (McLaughlin, Russ-Eft, & Rubin, 1978), presented a framework for identifying and extracting issues from written documents. As described in that first report, the goal of the method is to produce a set of alternative options for a data collection and reporting plan.

Each option will include a rationale consisting of specific policy issues and indicators of the importance of those issues. This report describes a technique for establishing the relative priorities of the issues. Forthcoming reports will apply these methods, providing (1) a list of key issues for elementary and secondary education* and (2) descriptions of analytical models and data bases that can be used to address the issue questions.

Perspectives on the Policy Process

From the literature in political science and organization theory, several different perspectives have emerged concerning the explanation and improvement of the policy process. To illustrate how divergent the perspectives can be, two extreme perspectives are described and contrasted. One perspective, which we shall call "mechanistic," views the policy process as a series of rational, problem-solving steps, for which solution mechanisms can be developed. The mechanistic perspective provides both a description and a prescription of the attributes of the policy process. This perspective has been characterized by some authors as possessing certain distinctive features (Lindblom, 1959; Braybrooke & Lindblom, 1963; Allison, 1971; Mann, 1976). These features include (1) the clarification of values as distinguished from an analysis of alternative policies; (2) the distinction of ends from means; (3) the development of ends that are comparable, though different; (4) the lack of constraints in the ability to assign resources among competing ends; (5) the availability of complete information and comprehensive analysis of the system and its components; (6) the allocation of resources according to marginal utility; and (7) the existence of decisionmakers who can decide and who can make allocations of resources.

*Although the method is applicable to all of education, the Center's greatest needs for issue identification are currently in elementary and secondary education.

The contrasting perspective appearing in the literature is usually developed as a reaction to specific oversimplifications of the mechanistic approach. Proponents of this perspective claim that the political or bureaucratic constraints are such that the mechanistic approach is invalid, infeasible, or both. We will refer to the contrasting perspective as "humanistic," because it emphasizes the human constraints faced by decisionmakers. In particular, the humanistic perspective recognizes that (1) values may not be distinguished from alternative policies; (2) ends or objectives may be adjusted to the available means, obscuring distinctions between ends and means; (3) ends or objectives may not be comparable; (4) consideration of alternatives and consequences is limited; and (5) information about the system and its components is limited. This perspective also emphasizes the following aspects of the policy process: (1) decisions usually require only small changes from the existing system; (2) problems are approached in a piecemeal fashion over time; and (3) many people and institutions are involved in the decisionmaking process. In fact, because of the serial and incremental nature of the policy process, with decisions predicated on previous decisions, a discrete "decision" by a decisionmaker or a group of decisionmakers may be difficult to identify. See Braybrooke and Lindblom (1963), Simon (1965), Allison (1971), and Mann (1976) for more detailed discussions of these points.

Although these two perspectives differ, it is useful to recognize that they both contribute to understanding and improving policymaking. The proponents of the mechanistic approach continue to search for heuristic solutions to the problem of formulating policies that will have the most beneficial outcomes, and the proponents of the humanistic approach continue to search for problems in the application of the proposed heuristic solutions. As a result of this conflict, we can expect increasingly complex mechanistic models that take into account more of the human factors affecting policymaking.

Whether one is an optimist or pessimist about the possibility of developing a system for identifying and prioritizing issues in order to guide data collection and analysis and, as a result, to better serve policymakers, depends in part upon whether one tends more toward

the mechanistic or humanistic perspective. We believe that there is room for optimism, particularly if one is sensitive to the important aspects of the two perspectives. It is through awareness of the political and bureaucratic constraints faced by decisionmakers that data collection, analysis, and reporting plans can be developed that will better serve policymaking. Such awareness, however, can be improved through a disciplined and systematic analysis of factors that affect the utility of information to decisionmakers.

To introduce the system for establishing issue priorities, it is necessary to briefly review the procedures by which issues will be identified.

Identification of Policy Issues

Several techniques for identifying important policy issues exist and have been used in similar efforts. These techniques include (1) analysis of the opinions of key actors in a policy arena, obtained from interviews or surveys (e.g., the critical incident technique [Flanagan, 1954] or the Delphi technique [Dalkey, 1969; Dalkey & Rourke, 1972; Sackman, 1975]), (2) analysis of information requests from staff of executive agencies or from congressional staff (see some discussion of this approach in the report by Wild, Fortna, and Knapp, 1978), (3) analysis of written documents (see a discussion of one such approach in the paper by McLaughlin, Russ-Eft, and Rubin, 1978), and (4) identification of questions thought to be topical and important based upon personal contact with policymakers and conversation about issues.

Each of these techniques attempts to probe the information network of the policy arena. In developing a systematic approach to the identification of issues, a mixture of these techniques was used. Policy issues and important sources of information (both persons and documents) were identified through interviews with key educational policymakers. (See the report entitled Results of Interviews with Educational Policymakers: A Step in the Development of an Issue Identification System for Educational Policies, Statistical Analysis Group in Education, 1979.) McLaughlin, Russ-Eft, and Rubin (1978)

provided a general framework for identifying issues from written documents. Detailed guidelines were then developed for identifying and extracting issues. In particular, issues were identified from written documents through the use of certain "flags" or issue indicators. Flags included (1) the appearance of words indicating controversy or potential for controversy (e.g., problem, issue, debate), (2) reports of changes in the educational system, (3) proposals for changes in the educational system, and (4) the appearance of causal statements, beliefs, and findings implying a needed change. (A description of these procedures, as they are currently being used, appears in Appendix A.) Additional interviews will be conducted with key policy-makers, after completing the issue identification procedures using literature on elementary and secondary education. These interviews will serve to validate the findings and indicate deficiencies in the method.

Establishing Priorities Among Issues

Outline of the Proposed Approach

The principal objective in establishing priorities among issues is to identify information that is urgently needed. Identification of the audience or clients for the information and definition of what constitutes urgently needed, or at least useful, information is a necessary first step in the proposed approach.

The primary clients for the work of NCES are those individuals at the federal level who are involved in developing and deciding educational policies and practices. Included in this group are individuals in the administrative branch who help design presidential proposals submitted to Congress and who determine the operating procedures for programs mandated by Congress. Also included are legislators and their staffs who assess the strengths and weaknesses of mandated programs. Although the audience for the work of NCES is broad, the needs of the primary clients are seen as most critical. Furthermore, it is likely that satisfying the needs of this primary audience will, to a great extent, serve the needs of the larger audience (e.g., state and local policy-makers and practitioners).

Information is useful to primary clients to the extent that it can help them in developing and deciding educational policies and practices. Thus, the proposed approach aims to estimate the extent to which investigation of a given issue is likely to yield useful information. More specifically, the approach attempts to assign priorities to issues on the basis of their projected usefulness for decisionmaking. This projection can be considered as an analogy to what is intuitively done by managers in deciding among alternative data collection efforts. The proposed approach will identify the factors that would be considered by a good manager--one who is sensitive to the political process, as well as knowledgeable about available social-science tools. In addition, it will guide the user in determining the value of each factor for each issue.

Our approach is based on discussions with members of the primary client group and with close observers of this group, and on our reading of the literature concerning the educational policy process. The factors that are identified and the method for combining these factors are the result of considerable efforts to understand at what times and for what purposes federal policymakers value information. We recognize that the suggested set of rules for assessing and combining factors is one of many possible alternatives; nevertheless, we believe that it provides a reasonable approximation of the processes undertaken by NCES's primary clients.

Factors in Establishing Priorities

From the point of view of an educational policymaker, the relative usefulness of information addressing a particular issue is a function of the level of uncertainty about the issue (i.e., how uncertain the policymaker is about the answer to the question posed as the issue) and the perceived importance of knowing the answer to the question. These two factors make independent contributions to the level of priority of an issue.

Since policies are attempts to meet social needs, they should be based upon knowledge of the causes of these needs and confidence in proposed approaches to meeting these needs. Thus, one may expect that

the perceived need for information in an issue area is inversely related to a decisionmaker's confidence that the causes of a problem are understood and the practices are appropriate for solving the problem. Lack of confidence, which we call uncertainty,* contributes greatly to a policymaker's appetite for information. All other factors held constant, the expected value of information contributing to an answer for an issue question increases directly with the level of uncertainty about the answer. One can think of a policymaker considering a set of alternative approaches to delivering a social service (e.g., mainstreaming handicapped students versus segregating them in a special school). The policymaker may be certain that one approach will be most effective; on the other hand, he or she may be uncertain as to the superiority of any one approach. In the latter case, information is needed if rational action is to be taken.

Priority will also vary as a function of the perceived importance of an issue. Four factors contribute to this assessment of importance: (1) the imminence of the events in that issue area impinging upon the decisionmaker; (2) the probability of change in policy or practice as a result of those events; (3) the scope of change; and (4) the sensitivity of the policy process to new information (or the probability that the direction of change can be influenced by information). All of these factors are included in what others have referred to as the timeliness and relevance of information (Caplan, 1977; Gilmartin & McLaughlin, 1977; Horst, Nay, Scanlon, & Wholey, 1974).

Imminence refers to the time pressure surrounding the need for information. Many of the events that contribute to the development of educational policies are part of a relatively predictable agenda. The dates of reauthorization hearings or staff reviews of federal programs

*The term uncertainty has a similar use in information theory and Bayesian statistics. To say that a person is "certain" is to say that he or she attaches a subjective probability of 1.0 to an outcome and a probability of 0 to all other possible outcomes. As uncertainty increases, the prior probabilities attached to the alternative outcomes approach equality. Thus, the greatest uncertainty occurs when all possible outcomes are seen as being equally probable.

as the basis for new legislation are known well in advance. The schedule for legislative response to bills introduced by the administration is less certain, however, and other important events may occur with little warning (e.g., the passage of the Jarvis-Gann referendum, Proposition 13, in California). Nevertheless, the pressure of time in reacting to events in an issue area is likely to increase the importance of an issue and of information about that issue. It is essential, therefore, to estimate future deadlines.

Upcoming events may call the attention of decisionmakers to a particular issue area; yet interest in new information may be relatively low because of a low probability of a change in policy or practice. Hearings may be scheduled, yet it may be known that existing policy will be continued. The expected attendance at such hearings will be low. In contrast, change in some other policy area may be very likely. Important events may have occurred that will require changes in existing practices. Dramatic budget cuts may be expected, or new interest groups may have formed that have disturbed the old alliances from which previous policies emerged. The greater the likelihood of change in policies or practices, the greater will be the importance of issues related to those policies or practices, and the greater will be the need for relevant information.

The scope of the expected change determines the likely importance of a change and, therefore, substantially affects the value of relevant information. Although the scope of change may have economic, political, and social ramifications, it can be considered in monetary terms. An expansion of an existing program or the development of a new one involves the costs of allocating new personnel, facilities, and materials to achieve the goals of the program. Conversely, the termination of a program may result in monetary savings to taxpayers, although the dislocation of those no longer employed in delivering services and the loss experienced by those no longer receiving services must be considered in calculating costs. The expected scope of change may also be conceived in terms of departures from established rationales for earlier policies and practices. While change in rationales may have small immediate monetary effects, such a change may indicate a future direction that

will substantially transform programs and practices. For example, the emergence of an emphasis on competency-based exams may indicate a reallocation of resources from programs that are supportive of high-achieving students to programs that remediate learning problems of low-achieving students. Other factors being equal, the greater the scope of change in an issue area, the greater will be the importance of issues in that area and the value of information addressing those issues.

Finally, the likelihood that the direction of change can be influenced by information, or the sensitivity to information, is an important factor in establishing issue priorities. Sometimes a change in policy or practice is very likely. At the same time, it may be unlikely that new information will play a role in determining the nature of the change. For example, a new political coalition may shift majority opinion in Congress from favoring an existing program to favoring one particular modification of it. The change is likely, the scope of change is relatively broad, and the time pressure for making the change is great; however, the impact of new information will be attenuated. Where political forces seem already to have shaped the future, policymakers' needs for information will be reduced. In similar circumstances, however, there may be a new block of undecided "voters." New problems in an issue area may have emerged, and old practices may hold no promise of solution. In such cases, the impact of new information may be amplified. A cogent report may "frame" or "set" a new problem-solving approach (Rein & White, 1977). Because the cogency of a report depends in part on its empirical validity, a coalition between policy and information experts can be particularly potent at this stage. Other factors being equal, as the predictability of change in policy or practice increases, the likelihood that information can influence the direction of change decreases.

Method of Combining the Factors

To compare the priority of different issues, it is necessary to have a method for combining the factors into a single scale. In

principle, the scheme for combination should approximate the subjective combining of factors performed by the primary clients.

We assume that the system of issue identification will provide lists of information needs that far exceed the resource capacity of the Center. Planners must then select among various opportunities for contribution. Frequently, the choices will be among issues that are considered important on one factor but unimportant on others. Thus, a method for calculating the relative importance of factors or their tradeoffs is needed.

Unless the tradeoffs can be calculated fairly precisely and uniquely (e.g., on a valid "ratio" scale), any attempt to mechanize this process must be viewed as only providing tentative guidelines for planning. If the method merely provides a ranking of issues, for example, that will not be sufficient information to decide on resources to allocate to the highest priority issue, the next highest, and so on. As we shall discuss in a forthcoming report, for each high priority issue it will be necessary to provide the Center with alternative activities to address the issues. Also, the system must provide a brief description of what is to be gained, at what cost, for each activity.

Arguments can be made that any one of the factors (uncertainty, imminence, probability of change, scope of change, and sensitivity) is the most important factor. Furthermore, the relative importance of the factors may vary dramatically for different issues at different times. To provide an estimation of the relative priority of issues and to illustrate the proposed method, a numerical assignment function has been developed to obtain a single priority rating for each issue.

Table 1 provides values for each of the factors. Refinement of the values is a task that will be accomplished together with the Center staff. As indicated, the numerical assignment function that is presented here is only a first approximation.

Priority Rating = Uncertainty x Imminence x Probability
of Change x Scope of Change x Sensi-
tivity

PR = (U)(I)(pC)(sC)(S)

Table 1
Factors and Their Values

Factors	Definitions of Values	Values
Uncertainty (U)	The need for information is great. Confidence in any one approach is low. Experts acknowledge much uncertainty.	3
	Some information is available and there is some consensus.	2
	Much persuasive information is available. Additional data will contribute only slightly to the precision of knowledge.	1
Imminence (I)	New legislation or regulations will be forthcoming this year. Clients are facing upcoming deadlines. A "hot" topic has emerged and although it doesn't yet appear on client agendas, it most certainly will.	3
	Issue will probably receive attention within the next two years.	2
	Issue does not now appear on client agendas, and there is no indication it will in the near future.	1
Probability of Change (pC)	Probability of change in policy or practice (to which issue is relevant) is great. Budget surpluses or deficits have occurred; important findings have changed rationales for existing policies. New political pressures will cause change.	3
	Probability of change is moderate. Indications are that existing policies or practices will be seriously investigated, and changes will be considered.	2
	Probability of change is small. No reason to expect different policies or practices than are already in place.	1
Scope of Change (sC)	Change would involve major social program or rationales for federal expenditure that will affect major programs in the future. Changes would be substantial in impact.	3
	Change would involve moderate-sized programs or rationales that might influence a small set of other programs. Impact of change would be moderate.	2
	Changes would involve social programs of relatively minor scope, or larger programs with changes being in the nature of marginal refinements.	1
Sensitivity to information	New problems in issue area have arisen, and the consensus is that new solutions must be found. There is a bloc of influential, but as yet "undecided," persons receptive to new information. The need for a new "framework" for approaching policy decisions is recognized.	3
	Given persuasive new information, established views may be swayed. Policymakers will continue past policies if no new information is available, but they will consider new information should it emerge.	2
	Possible actions with respect to policies and practices to which issues are relevant are already predictable with high confidence. Political forces will dominate policymaking.	1

*Note on imminence: Time pressure may be very great in some issue areas, so great that most data collection methods would be too time-consuming to yield information when needed. Still, in this scheme, the issues would receive high weights on imminence. The issue would then be ranked high in priority. We feel that such ranking is appropriate. Managers making allocation decisions will recognize that only "quick and dirty" methods will yield timely results. They may choose or reject such methods based on an assessment of the expected value of the information; that is, the degree to which such information reduces uncertainty. After the events that create the time pressure have passed, the priority of the issue will be lowered.

It should be noted that different methods for combining factors can be included in this simple multiplicative model. First, differential weights (weighting imminence more than sensitivity, for example), can be simulated by widening the intervals between numerical values on some factors relative to others. For example, changing "imminence" values from 1, 2, and 3 to 1, 4, and 9, by squaring them, would effectively double the weight of this factor relative to others.* Second, for choices in which one alternative "dominates," or has a higher rating on all factors, the method of combining factors will be immaterial. Note that, in this multiplicative model, each of the factors can have a "zero" value (absolutely no imminence, no uncertainty, etc.). For issues with a zero value on one factor, the values on the other factors are irrelevant.

Much remains to be done to refine the quantitative aspects of this method, including analysis of actual decisions. We feel that this can be accomplished most efficiently through a joint effort of individuals at the Center and in SAGE.

Assignment of Factor Values

Knowledge of the political context of an issue is needed for assigning values to the five factors. Such knowledge can be gained directly, through participation in the education policy process, or indirectly, through careful reading and close observation of that process. Since we are concerned here with developing an indirect approach, we must identify key indicators of factor values that can be monitored. (Those who participate directly in the policy process may monitor these indicators also.)

From reading the literature in an area, one gains a perspective on the current controversies, the alternative positions, and the information available to support these positions. In terms of our proposed approach, unless some concern is expressed or some change is

*If $V = C_1 C_2 C_3 C_4$, then $\log V = \log C_1 + \log C_2 + \log C_3 + \log C_4$; and squaring C_1 effectively doubles the weight applied to $\log C_1$.

reported or recommended, no issue will be identified from the literature. Because issues are seldom raised about social programs that have widespread confidence, our procedure for identifying issues will usually lead to the assignment of a high uncertainty rating. An important consideration in assigning a value to the factor of uncertainty is the degree to which alternative proposals exist for addressing an issue. A second consideration is the degree to which information exists to support proposals. If no alternative proposals (or positions) exist but concerns have been raised, uncertainty is likely to be high. If alternatives exist but none have much credibility because little supporting information exists, then uncertainty is again high. However, if alternatives exist and one of them is persuasively supported by information, the level of uncertainty must be lower. In such cases, depending on the number of alternative positions and the amount and quality of their supporting information, the value assigned to the uncertainty factor would vary from intermediate to low. As the number of positions that appear to be persuasively supported increases, uncertainty again increases.

The factor of imminence depends largely on the legislative calendar. Expiring legislation, leading to reauthorization and budget approval hearings, provides one important set of indicators. Other indicators may be contained within the legislation itself; in some cases, administrative actions with specific deadlines are mandated. Presidential statements and administrative regulations or practices that set certain dates for action provide another set of indicators. Timeframes and deadlines for action may also be set by court cases and public elections. The time constraints can be determined through careful reading of daily print media, such as Education Daily, the Washington Post, and the New York Times. Media sources may not provide a clear statement of an issue, but they do serve a key function, especially Education Daily, in disseminating information about the timeframes within which important education-policy events will occur.

Probability of change can also be determined from an analysis of the printed media. In assigning a value to the probability of change, it is important to go beyond an identification of alternative proposals or positions and to determine the likelihood that any of the proposed

alternatives to past practice or policy will be adopted. To do this, one must determine the strength of competing positions, including that of continuing past practices. Indicators of the probability of change include the development of new interest groups or new coalitions supporting the change and the weakening of old alliances supporting previous practices. (According to Eidenberg and Morey, 1969, such conditions enabled the passage of the Elementary and Secondary Education Act of 1965.)

The scope of the change can be determined by examining statements of proposed policy, often draft legislation, to identify practices that may be affected. For indicators of the scope of the change, it will be necessary to know the present and proposed budgets of the program, current practices or operations that will be affected, and the extent to which proposed changes will result in budget reallocations. The extent to which a possible change in one program signals a change in policy that will affect other programs should also be monitored. A public demand for fiscal frugality, revenue sharing, or tax relief may underlie a particular program change. If policymakers have been influenced by a new way of thinking about social programs, they may well extend this new approach to other programs.

The factor of sensitivity to new information depends, to some extent, on the same indicators as the factor of probability of change. In addition, it will be important to know the commitments of persons to alternative positions and the quality of the information supporting these positions. If the level of commitment is not strong or if there are significant numbers of uncommitted persons, the sensitivity to new information will be high. Similarly, if the information supporting the alternative positions is not fully persuasive, sensitivity will be high. Another indicator of the level of sensitivity to new information is the extent to which debate is being waged on moral or ethical grounds. For example, some of the arguments concerning the restriction of the tax-exempt status of Christian schools are placed in the moral realm. During recent hearings, Christian academies told the Internal Revenue Service that admissions to their schools "are determined by Biblical authority" and that "in a conflict between the government and

God, we will obey God" (Education Daily, December 11, 1978). In such cases, sensitivity to information may be low.

Application of the Method

To begin to provide the basis for evaluating the abstract concepts discussed above, we present two applications of the proposed method. The two issues that are considered here were identified and described in a report by Russ-Eft, Rubin, and Holmen (1978). These issue areas are:

1. Explanations and solutions for low recruitment and retention rates in adult basic education (ABE)

Which of several strategies for increasing the recruitment and retention rates are most effective?

2. Counseling

In what roles are counselors most cost-effective as members of the ABE staff?

First, for the issue of low ABE recruitment and retention rates, we will examine each of the factors that determine its priority. Several explanations and proposed "solutions" for low recruitment and retention rates have been suggested, but no definitive investigations have examined all the alternatives. The alternatives seem equally plausible, thereby decreasing confidence that the best solution to the problem is known. Therefore, the uncertainty is high ($U = 3$). This issue, furthermore, formed the basis for some of the recent discussions on the amendments to the Adult Education Act. Although some decisions were made and certain changes were incorporated into the Act, the issues related to recruitment and retention remain timely. Administrative officials in the U.S. Office of Education are currently drafting regulations for this new legislation. Information on these issues, especially if provided before May 1979, may affect the formulation of these regulations. Thus, imminence is high ($I = 3$). Clearly, change in existing practices will occur as a result of the new legislation. For example, emphasis is being placed on providing support services, such as transportation

and child care. The probability of change, therefore, is high ($pC = 3$). Change from previous practice may be fairly substantial, although the degree of change may vary from state to state. Programs in certain states, such as California, have already instituted special services to encourage increased recruitment and retention, while programs in other states have few such services. Therefore, the scope of the change is considered moderate ($sC = 2$). The new legislation has already determined the directions for the changes. The exact form that they will take, to be determined largely through the drafting of administrative regulations, has yet to be decided. Thus, the sensitivity to information is moderate ($S = 2$). The level of priority for this issue would be

$$PR = (U)(I)(pC)(sC)(S)$$

$$PR = (3)(3)(3)(2)(2)$$

$$PR = 108$$

In contrast, consider the issue on the cost-effectiveness of counselors. Questions have been raised concerning the role of counselors in ABE programs (e.g., Mezirow, Darkenwald, & Knox, 1975; O'Keefe, 1976). Again, the level of uncertainty is high ($U = 3$). Given that these issues were not raised in the recent amendments, they are not of immediate concern. Since neither legislative nor regulatory changes are scheduled in the next year and major education amendments will not appear until 1984, the imminence is low ($I = 1$). It is unlikely that major changes in programs would occur without some legislative mandate. Thus, the probability of change given any set of results on the issue is not very high ($pC = 1$). The scope of a change, if it occurred, would be of moderate degree ($sC = 2$). Finally, since no major interest groups are committed on this issue, the sensitivity to information is moderate ($S = 2$). Therefore, the rating on this issue is as follows:

$$R = (U)(I)(pC)(sC)(S)$$

$$R = (3)(1)(1)(2)(2)$$

$$R = 12$$

Strengths and Weaknesses of the Approach

We believe that use of the proposed method can be of substantial value to the Center in prioritizing issues for input to the process of

allocating resources. Because the system will specify uniform procedures, its application will ensure that all candidate issue-based data collection and reporting proposals will receive uniform attention during planning. This provides a safeguard against the tendency to overlook important elements in an unstructured assessment of the priority of issues.

The method also provides a foundation for planning that can be used to supplement more subjective judgments of importance. Intuition and judgment must be a part of any prioritizing scheme, but total reliance on such subjective methods may sometimes cause planning to "miss the mark." When the proposed system is applied, there will no doubt be instances where the ratings that are determined will seem counterintuitive. These instances should alert decisionmakers to probe for the causes of the discrepancies. The resulting conclusions may indicate needed refinement of the method or a reconsideration of previous judgments.

The method is not without weaknesses. Its objective is to project the value of alternative sets of data and analyses for the primary audience for NECS efforts. Any such method, including ours, must make certain assumptions, and these assumptions are open to discussion and debate. In particular, the assumptions may have oversimplified (1) the definition of the primary NCES audience, (2) the identification of the factors that make information important to this audience, and (3) the determination and combination of the values for these factors for a particular issue. Another problem is that the determination of factor values may be difficult at times. For example, to rate probability of change or sensitivity to information requires substantial knowledge about persons and groups who are politically active in the debate of an issue. When issues are emerging or changing rapidly, this knowledge may have to be acquired first-hand.

A realistic assessment of the merit of the proposed method should not overlook these weaknesses. Still, we are optimistic that the strengths of the method outweigh the weaknesses. This method will, then, contribute to improvements in planning for organizations such as the Center that collect, analyze, and disseminate information.

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APPENDIX A

Overview of the System for Identifying and Prioritizing Issues in Elementary and Secondary Education

The purpose of SAGE Task 1 was to develop a system for identifying and analyzing current and emerging issues in elementary and secondary education. The Center staff could then use the results of this effort in planning and in developing future data collection and reporting efforts. Presumably, implementing such a process will increase the frequency with which NCES products provide critical inputs to the education policymaking process.

From a review of previous efforts, it became clear that debates have raged concerning the definition and the formulation of issues. The authors believe that the definition of an "issue," whether theoretical or operational, is not as important as is the action to be taken by NCES as a result of the identified issues and data needs. What is important is that issues provide a link between policymaker needs and statistical reports that can be generated by NCES. Nevertheless, it is useful to document the approach that was followed in the present study, in order to validate the statements made in the report concerning the importance of different issues.

The dictionary defines an "issue" as "(1) a point of discussion, debate, or dispute, and (2) a matter of wide public concern" (Morris, 1971). Extending that definition somewhat, an issue is a question for which the answer is important in resolving or structuring discussions, debates, and disputes among individuals. By defining an issue as a question, we are avoiding a formulation in terms of statements, either as "topics of concern," such as "school finance" or "desegregation," or as declarations of fact. Both of these latter formulations suffer from being too vague, and they force the reader to decide or identify the points of debate. Questions, on the other hand, directly indicate an information need.

Having defined an issue, it is important to clarify different types of issues. An empirical issue is one that can be answered by the gathering of information. A research issue is an empirical issue in which the answer verifies or contradicts a scientific hypothesis or theory. A policy issue may or may not be empirical, but the alternative answers or resolutions to that issue have implications for policy in that they support certain decisions or actions. For NCES, empirical policy issues are of special importance, since a part of the Center's mission is to provide the information necessary for formulating and evaluating federal education policy alternatives.

Returning to the purpose of this SAGE effort, it was obvious to the authors that, to be useful, a document-monitoring system for identifying and analyzing issues had to do more than aid in the identification of documents to be read and types of issues to be counted. A long list of issues in elementary and secondary education could be generated with or without much reading by just recording "obvious" questions. What is of interest to NCES, though, is the identification of important empirical, research, and policy issues for use in future planning. Because of limited resources, the Center must direct its efforts toward a selected set of issues. Therefore, the system must assist not only in identifying issues but also in establishing priorities among issues and in elaborating the data needs. The following sections briefly describe the process by which issues were identified from written documents and by which priorities were established among these issues.

Identifying Issues

Given the purposes of this task and the definitions that we have imposed, certain limitations or constraints to the issue identification process must be recognized:

- (1) Any identified issue must pertain to elementary or secondary education.

- (2) There must be evidence of potential disagreement or debate about the answer to the question.
- (3) It should be a matter of wide public concern.
- (4) It must be potentially possible for information to be gathered or reported that will illuminate the debate surrounding the issue.

The issue identification process focused on a review of printed sources. To determine important written documents for this review, interviews were conducted with individuals active in the national policymaking arena. The following publications were identified as being key sources and were subsequently monitored by the project staff:

Education Daily
Harvard Educational Review
Phi Delta Kappan
Education U.S.A.
National Journal
Congressional Quarterly
Public Opinion
School Review

In view of the need for identifying current issues, as well as the large volume of material to be reviewed, the document monitoring was limited to the period between 1 June 1978 and 30 April 1979. Future replications of this effort might focus on a similar time period every two or three years to update the Center's issue-base for planning data collection and reporting activities.

Guidelines were developed to assist the staff in identifying issue material and formulating issue questions embodied in the documents. In particular, certain indicators were used to signal the presence of an issue question. These included (1) emotion words (e.g., "problem," "issue," "debate") or value judgments; (2) reports of current or imminent changes in aspects of the education system;

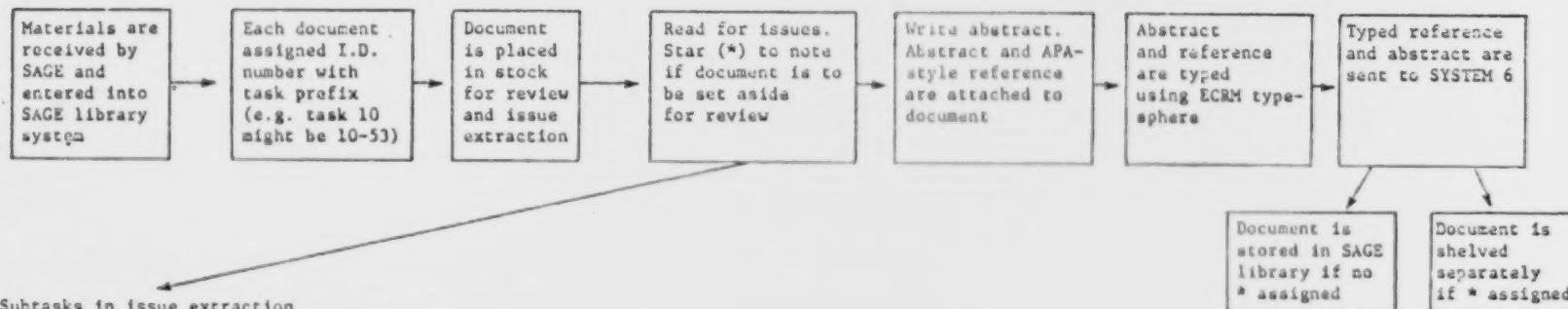
(3) reports of proposed changes in aspects of the education system, and (4) the existence of causal statements, beliefs, or findings. The presence of any one of these indicators provided the basis for inspecting and analyzing the nature of the concern more closely. Following this analysis, a format was selected for the wording of the issue question. The entire process is displayed in Figure A-1 and can be considered to be the operational definition of an issue as used in this project.

After recording the issue question on an "issue card," the reader attempted to assign the issue to a specific location within a taxonomy. The purpose of this assignment was threefold. First, for many potentially important issues being identified, the taxonomy provided a convenient mechanism for charting the relationships among them. Second, assignment to the taxonomy afforded some further insight into the nature of the debate. Third, review of the issue cards in a part of the taxonomy supplied the reader with an overview of the current debates in that particular area of concern. The taxonomy for recording and indexing issues in documents is presented in Figure A-2.

An overview of the entire document review process appears in Figure A-3. It provides a listing of each of the steps followed by the readers.

Although the previously mentioned taxonomy provided a deductively developed categorization, it was recognized that an inductively-developed taxonomy would be more closely tied to current issues and concerns. Therefore, the staff followed the procedures listed below. It should be noted that these are a modification of guidelines set forth by Flanagan (1954, 1974) for analyzing critical incidents. (Indeed, the entire process of issue identification can be viewed as a modification of the critical incident technique.)

1. Select a general frame of reference.
2. Sort a sample of issue cards into a few piles in accordance with the selected frame of reference.



Subtasks in issue extraction

- A. Read document looking for flags (see "guide for identifying issues").
- B. Draw box around text containing statement of issue where flag occurs.
- C. Identify flag type (e.g., A troubling condition is recognized, imminent change recognized, change proposed, causal statement).
- D. Using guide translate issue into standard format (e.g., Is it true that...?). If statement too vague see "E.3." below. Record issue-question and document number on filecard as in illustration.
- E. Using taxonomy for recording issues (a portion of the form is illustrated below):
 1. Record document number on form.
 2. For each issue statement recorded (one per index card) write index card number in appropriate cell of taxonomy matrix.
 3. For issues too vaguely stated for explicit identification of cell assign to general category such as "Population Served." Translate into: "Is there evidence that _____ is problematic?"
- F. Record issue-area code into card. For this example:

Major category is IA. Population served; subgroups
 Minor category is 5. other.
 Type of issue is w. A troubling (problematic) condition is recognized.
 Therefore issue code is IA5 w.
- G. Continue through document identifying issues and translating them into common form, filling out the taxonomy form and index cards until the document is completed.
- H. Decide if this document should be reviewed prior to drafting policy paper. If so put * on upper right hand corner of cover sheet for document which will have complete reference and abstract of it for typist.
- I. Return document to shelf for typist with cover sheet attached.
- J. File any index cards by issue codes.
- K. File taxonomy forms by form number.

Doc. # 1-53	Issue code # I-A-5 w	Card # 213
Is it true that a disproportionate number of Indian (native American) students fail to complete high school? Reviewer's initials: DPR		

3. TAXONOMY FOR RECORDING AND USE

Doc. # 1-53				
I. POPULATION SERVED				
A. Who if not all?				
1. Black	2. Hispanic	3. Women	4. Handicapped	5. Other
B. Who decides?				
C. What criteria?				
D. What special services/what costs?				

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Figure A-1. Overview of document review.

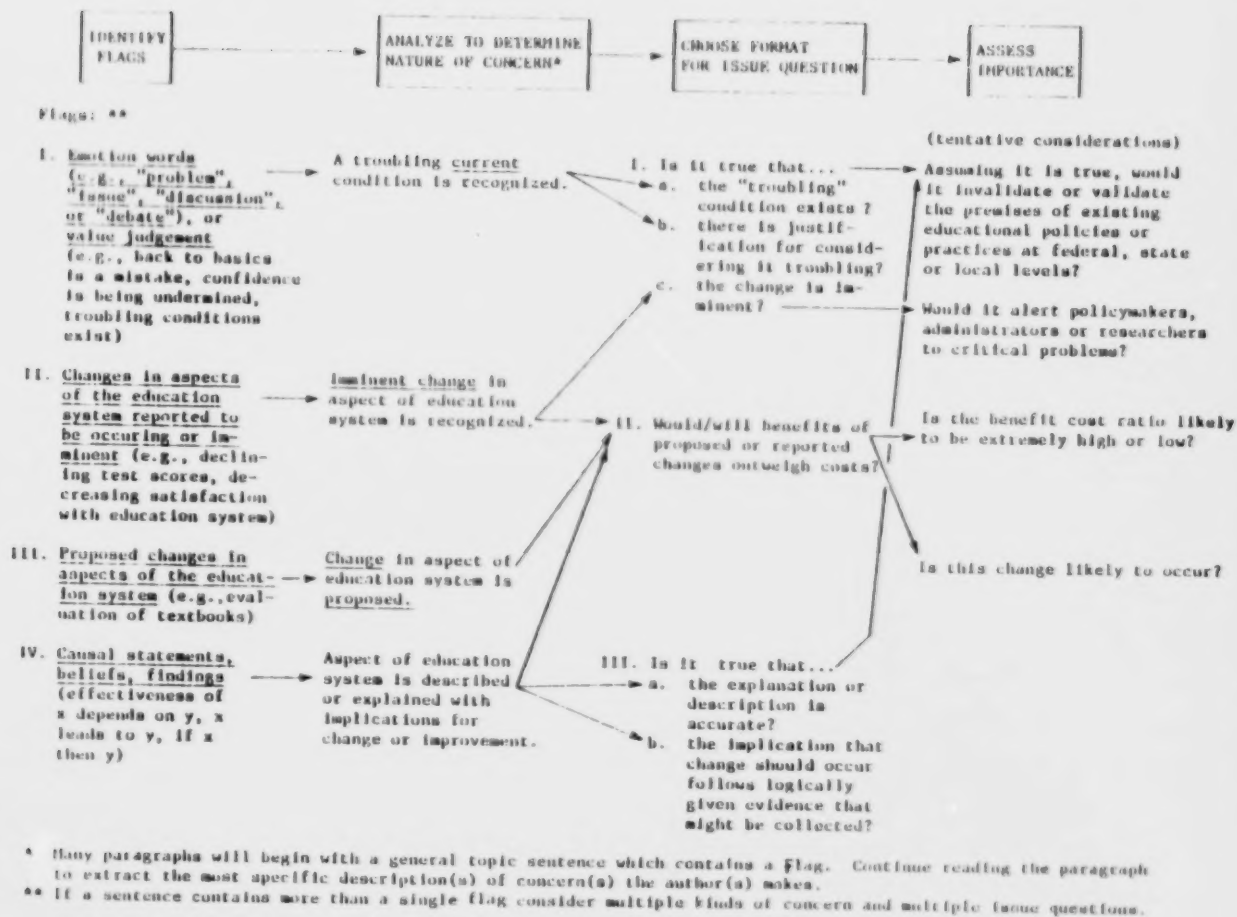


Figure A-2. Guide for identifying issues in documents.

	w x y z*	w x y z
I. <u>POPULATION SERVED</u> A. <u>Subgroups</u> 1. Black 2. Hispanic 3. Women 4. Handicapped 5. Other 6. All B. <u>Who decides?</u> C. <u>What criteria?</u> D. <u>What special services/what costs?</u> E. <u>Social environment</u> II. <u>SERVICES PROVIDED</u> A. <u>Objectives of Instruction</u> 1. Selection of a. public role i. parents ii. students b. staff role c. government role 2. General nature and purpose of 3. Academic skill levels 4. Non-academic objectives a. physical education b. moral education B. <u>Instruction</u> 1. Instruction (curricula) a. traditional (1r) b. nontraditional i. drug/alcohol abuse ii. sex education iii. other c. relevance to students 2. Methods a. selection of/improvement of i. public role ii. teacher's role iii. role of systematic evaluation iv. particular ideas on methods b. general nature i. use of technology ii. distinct vs. overlapping subjects iii. use of packages iv. teaching techniques v. other c. diffusion of innovation C. <u>Evaluation (Testing)</u> 1. standards for assessing student progress, including credentialing students 2. methods of evaluation 3. selection of methods 4. roles (federal, state, local) D. <u>Counseling</u> E. <u>Other (including outcomes)</u>		III. <u>ORGANIZATION FOR DELIVERY</u> A. <u>Staffing</u> 1. qualifications/selection criteria 2. selection procedure 3. promotion 4. salary 5. affirmative action 6. inservice training B. <u>Management</u> 1. of staff 2. of students 3. new techniques 4. evaluation of C. <u>Administrative Structure</u> 1. local 2. district 3. state 4. federal D. <u>Place</u> 1. alternative school/classroom organization 2. energy efficiency 3. building safety 4. transportation E. <u>Reform and Innovation</u> 1. Roles in a. federal b. state c. teacher d. student e. parent f. lobbyist 2. Techniques of a. financial incentives b. mandates c. bargaining/negotiation F. <u>Coordination of Services</u> IV. <u>FINANCE</u> A. <u>Federal Role</u> 1. what? 2. how? 3. which agencies? B. <u>Who bears cost?</u> C. <u>How much?</u> D. <u>Method of Revenue Collection</u> E. <u>Method of Distribution</u> F. <u>Who decides?</u>

* w=problematic; x=change reported; y=change proposed; z=causal statement

Figure A-3. Taxonomy for recording and indexing issues in documents.

3. Formulate tentative headings for the major categories.
4. Sort additional issue cards into these major areas and setting up new subcategories as necessary. (During this process, all issue cards that were so similar that they would remain together regardless of changes in category definitions were clipped together and treated as one unit.)
5. Prepare tentative definitions for major headings and generalized issue questions for each of the main categories of issues.
6. Redefine major areas and issue questions as necessary while issue cards are being classified.
7. Have an independent check made on the classification of issue questions.

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